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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2014-15 05.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

Customer : **Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.

Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk - 562 157.

Name of Work : Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.

Reference : EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	175	175	3.5	96.5	95-100
22.4	1580	1755	35.1	64.9	60-80
11.2	1123	2878	57.6	42.4	40-60
4.75	625	3503	70.1	29.9	25-40
2.36	455	3958	79.2	20.8	15-30
0.600	400	4358	87.2	12.8	8-22
0.075	350	4708	94.2	5.8	0-8

Note:

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/Gradation/2014-15

05.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

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Agency : **Mr. B.B. Umesh,**
#385, Bettaulsur (P), Bangalore North Taluk - 562 157.

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Reference : EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	165	165	3.3	96.7	95-100
22.4	1510	1675	33.5	66.5	60-80
11.2	1055	2730	54.6	45.4	40-60
4.75	710	3440	68.8	31.2	25-40
2.36	685	4125	82.5	17.5	15-30
0.600	405	4530	90.6	9.4	8-22
0.075	315	4845	96.9	3.1	0-8

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05.03.2015

GRADATION FOR WMM
MORTH TABLE-400-11

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Agency : **Mr. B.B. Umesh,**
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Reference : EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	195	195	3.9	96.1	95-100
22.4	1455	1650	33.0	67.0	60-80
11.2	1080	2730	54.6	45.4	40-60
4.75	685	3415	68.3	31.7	25-40
2.36	610	4025	80.5	19.5	15-30
0.600	435	4460	89.2	10.8	8-22
0.075	325	4785	95.7	4.3	0-8

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05.03.2015

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Reference : EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	120	120	2.4	97.6	95-100
22.4	1525	1645	32.9	67.1	60-80
11.2	1035	2680	53.6	46.4	40-60
4.75	695	3375	67.5	32.5	25-40
2.36	310	3685	73.7	26.3	15-30
0.600	455	4140	82.8	17.2	8-22
0.075	555	4695	93.9	6.1	0-8

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Reference : EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015

Date of Testing : 05.03.2015

Material : WMM

Sample Location : WMM Mix Plant

Oven Dry Wt (gm): **5000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	110	110	2.2	97.8	95-100
22.4	1575	1685	33.7	66.3	60-80
11.2	1015	2700	54.0	46.0	40-60
4.75	690	3390	67.8	32.2	25-40
2.36	620	4010	80.2	19.8	15-30
0.600	425	4435	88.7	11.3	8-22
0.075	365	4800	96.0	4.0	0-8

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05.03.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	385	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	82	85	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	21.47	22.08	
	100* (W_2/W_1)%			**21.77**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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05.03.2015

Aggregate Impact Value

IS: 2386 Part IV

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Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	381	384	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	81	84	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines	21.26	21.88	
	100* (W_2/W_1)%			**21.57**

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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05.03.2015

Aggregate Impact Value

IS: 2386 Part IV

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Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source / Location	WMM Plant
Type of Mix	Wet Mix macadam
Date of Testing	05.03.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	87	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	299	299	
4	Aggregate Impact value = percent fines	21.73	22.54	
	100* (W_2/W_1)%			22.13

Comments:

→ Maximum allowable Aggregate Impact value for Wet mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2014-15 05.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Client	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.03.2015

Result : Flakiness Index = **11.52%**

Elongation Index = **13.28%**

Result : Combined Flakiness & Elongation index 24.80%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/WMM/S-T/2014-15 05.03.2015

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Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.03.2015

Result : Flakiness Index = **11.84%**

Elongation Index = **13.37%**

Result : Combined Flakiness & Elongation index 25.21%

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2011)
Type of Mix	Wet Mix Macadam
Date of Testing	05.03.2015

Result : Flakiness Index = **12.12%**

Elongation Index = **13.65%**

Result : Combined Flakiness & Elongation index **25.77%**

Comments:

Maximum allowable Flakiness & Elongation Index for Wet Mix Macadam is 30%

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T-2377

Job No: CTCE/BBMP/W.No.09/BBU/CSR-04/807e/SDBC(QB)/2015-16 08.04.2015

TEST REPORT ON DETERMINATION OF BITUMEN CHARACTERISTICS

*CUSTOMER	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
*AGENCY	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
*NAME OF THE WORK	:	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	:	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
*SAMPLE ID	:	Bitumen
DATE OF SAMPLING	:	06.04.2015
PERIOD OF TESTING	:	08.04.2015

The results of the tests conducted on the bitumen sample using for Semi Dense Bituminous Concrete.

Sl. No	Description	Test Method as per IS	Test Result	Requirement as per IS:73:2013
1	Penetration at 25 ^{0}C, 1/10 mm	IS :1203 -1978 (RA-2009)	85	80 to 100
2	Softening point, ^{0}C	IS :1205 -1978 (RA-2009)	47	Min. 40
3	Ductility at 27^{0}C, cm	IS :1208 -1978 (RA-2009)	100 >	Min. 75
4	Flash Point, ^{0}C	IS :1209 -1978 (RA-2009)	292	Min. 220

*Information is furnished by the Customer/Representative.

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VIDYARANI P.K.
Technical Manager

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Tele Fax : 23223227, Website : www.civiltechconsultants.com
E-mail : vishwanath.ia@civiltechconsultants.com / info@civiltechconsultants.com

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AIV/2015-16 08.04.2015

Aggregate Impact Value

IS: 2386 Part IV

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	08.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	383	386	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	83	86	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines 100* (W_2/W_1)%	21.67	22.28	21.98

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AIV/2015-16 08.04.2015

Aggregate Impact Value

IS: 2386 Part IV

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Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source / Location	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	08.04.2015

Sl No.	Details	Trial No. 1	Trial No. 2	Average
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	379	382	
2	Weight of agregate passing 2.36 mm sieve after the test = W_2 g	79	82	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	300	300	
4	Aggregate Impact value = percent fines $100^* (W_2/W_1)\%$	20.84	21.47	21.16

Comments:

→ Maximum allowable Aggregate Impact value for Semi Dense Bituminous Concrete is 27%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 08.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	08.04.2015

Result : Flakiness Index = **11.81%**

Elongation Index = **13.74%**

Result : Combined Flakiness & Elongation index **25.55%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Shape_T/2015-16 08.04.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Technical Reference	IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	08.04.2015

Result : Flakiness Index = **11.96%**

Elongation Index = **13.87%**

Result : Combined Flakiness & Elongation index **25.83%**

Comments:

→ Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stripping/2015-16 10.04.2015

Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	10.04.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.2	3.30	96.70
2	3.3		
3	3.4		

Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Sp_Wa/2015-16 10.04.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	10.04.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2024	2025	2026	
2	Weight of basket suspended in water	W_2 g	750	750	750	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1274	1275	1276	
4	Weight of saturated surface dry aggregate in air	W_3 g	2017	2016	2019	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	743	741	743	
6	Weight of oven dried aggregate	W_4 g	2004	2005	2007	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.697	2.706	2.701	2.701
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.745	2.747	2.746	2.746
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.65%	0.55%	0.60%	0.60%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 10.04.2015

BITUMEN DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
NAME OF THE WORK	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
SAMPLE I/D	Roads at Defense Layout & BEL Layout, W No. 09, BBMP, Bangalore.
DATE OF TESTING	10.04.2015

BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Bitumen/2015-16 10.04.2015

GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS : 2386 and IRC : SP : 11 - 1984

CUSTOMER	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
AGENCY	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
NAME OF THE WORK	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
REFERENCE	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated:
SAMPLE I/D	Roads at Defense Layout & BEL Layout, W No. 09, BBMP, Bangalore.
DATE OF TESTING	10.04.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	28.25	5.95	5.95	94.05	90-100
4.75	253.58	53.39	59.33	40.67	35-51
2.36	56.45	11.88	71.22	28.78	24-39
1.18	52.32	11.01	82.23	17.77	15-30
0.3	26.35	5.55	87.78	12.22	9-19
0.075	38.15	8.03	95.81	4.19	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	35.26	7.44	7.44	92.56	90-100
4.75	262.3	55.34	62.78	37.22	35-51
2.36	57.18	12.06	74.84	25.16	24-39
1.18	43.26	9.13	83.97	16.03	15-30
0.3	24.54	5.18	89.14	10.86	9-19
0.075	29.25	6.17	95.31	4.69	3-8

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/AGG/2016-17 10.04.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the Work	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	10.04.2015

Total Weight of Sample: **5650** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	455	8.1	8.05	91.95	90-100	
4.75	2970	52.6	60.62	39.38	35-51	
2.36	745	13.2	73.81	26.19	24-39	
1.18	460	8.1	81.95	18.05	15-30	
0.3	390	6.9	88.85	11.15	9-19	
0.075	320	5.7	94.51	5.49	3-8	

Total Weight of Sample: **5600** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	375	6.7	6.70	93.30	90-100	
4.75	2955	52.8	59.46	40.54	35-51	
2.36	625	11.2	70.63	29.38	24-39	
1.18	430	7.7	78.30	21.70	15-30	
0.3	370	6.6	84.91	15.09	9-19	
0.075	490	8.8	93.66	6.34	3-8	

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Job No.: CTCE/BBMP/W.No.09/BBU/SDBC/Stability/2015-16 10.04.2015

TEST REPORT ON STABILITY OF MIX

Customer	:	**Asst. Executive Engineer,** Vidyaranyapura Sub Division, BBMP, Bangalore.
Agency	:	**Mr. B.B. Umesh,** #385, Bettaulsur (P), Bangalore North Taluk - 562 157.
Name of the Work	:	Improvements & Asphalting to Defense Layout and BEL Layout Main Road and Cross Roads in Ward No.09, Vidyaranyapura Sub Division, BBMP, Bangalore.
Reference	:	EE/BTP/BBMP/E-PMT/08(16525)WO/321/2014-15 Dated: 23.02.2015
Source of location	:	Hot mix Plant, Bangalore
Type of Mix	:	Semi Dense Bituminous Concrete
Date of Testing	:	10.04.2015

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follows:

Sl. No	Description	Test Result 1	Test Result 2	Requirement as per MORTH (Table 500-16)
1	Marshal Stability, Kn	8.65	8.80	8.2 Kn (min)
2	Marshal flow, mm	3.10	3.25	2 – 4
3	Percent air voids in Mineral Aggregate	3.75	4.10	3 – 5
4	Voids in Compacted Mix	13.55	13.75	13 – 15
5	Percent Voids filled with Bitumen	66.30	67.80	65 - 78
6	Density, g/cc	2.27	2.28	--

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